

## **STCG TANK SUBGROUP MEETING MINUTES**

June 9, 1998

### **WELCOME/UPDATES (CATHY LOUIE)**

Cathy welcomed the group. Shortly after the meeting started, we were asked to evacuate the building because a suspicious package was found hanging in a tree near the front entrance. The meeting moved back inside after about an hour.

### **Minutes from Last Meeting (Facilitator)**

The facilitator reviewed the minutes and the action items from the May 12 meeting.

### **ASTD Proposals (Bill Bonner)**

Bill apologized for the fact that the ASTD proposals were not distributed to the Subgroup sooner. He passed out draft versions of the two proposals that were to be submitted from the Tank Subgroup: 1) Sodium Minimization in Hanford High-Level Waste Tanks and 2) Hanford Deployment of Rapid PCB Screening Technology. The Site is asking for \$100K each, with EM-30 to provide matching funds.

Cathy asked the Subgroup members to provide comments to the facilitator within 2 weeks. If the proposals are funded, the comments will be incorporated. Ecology has already reviewed both proposals. They are in favor of the first proposal, but they have concerns on the other one. Alex Stone will send Ecology's comments to the facilitator to be forwarded to the Subgroup.

### **Management Council Report (Cathy Louie)**

Since Cathy would not be available to attend the June STCG Management Council meeting, she asked for a volunteer to present the Tank Subgroup's monthly report. Gary Ballew volunteered.

### **Other Ongoing Activities**

Alex Stone was asked about the fact that the State is suing DOE and John Wagoner over interim stabilization and related activities, including vadose zone impacts. Governor Locke has said "Enough is enough!" The State says that problems are not being solved in a cost-effective, efficient manner. The interim stabilization milestone was changed 13 times, but this is the first time that the State has sued DOE.

Cathy noted that the Site has been interviewed by *The Wall Street Journal* and *Time*. The GAO may start another evaluation of TWRS, too, possibly related to privatization. The TWRS privatization decision is due to Congress by June 30 for review. Lack of privatization information was a big topic at the last HAB meeting. They want more details and an opportunity to comment.

Cathy passed out copies of a December 1997 HTI Retrieval Technology document by Jim Yount, et. al.

### **HTI CHARACTERIZATION WORK (AL NOONAN)**

Al distributed a handout called “Hanford Tanks Initiative (HTI) Characterization Progress to Date”. His presentation covered User and Technical Data Needs, Approach to Data Collection, Status of Technology Deployments, Use of Technical Data and Technology, and Key Products. He reflected on the past year and a half of progress as well as some planned technology deployments.

The scope of the HTI Characterization Project is to establish new capability through technology demonstrations and deployments to provide the minimum and sufficient characterization information required to support: 1) tank waste retrieval and tank closure decisions, and 2) understanding of vadose zone contaminant inventory and mechanisms of transport to the Columbia River.

The basis for technology selection to acquire tank waste data and information is to:

- use existing or commercially available instruments for characterization
- use existing deployment platforms (e.g., LDUA, cone penetrometer)
- use near-ready and proven technology (peer reviews said to use simple tools like auger sampling)
- minimize technology development
- maximize the use of industry when practicable
- use the Hanford infrastructure (i.e., field and laboratory support services).

There is an estimated 7,000 gallons of waste left in Tank AX-104, which was sluiced in 1977, and it is not uniform. Al had excellent photographs showing waste piles that are 10-12 inches deep. He also had color photos of the equipment and instrumentation used for tank waste characterization.

### **VADOSE ZONE TECHNOLOGY WORK (DAVID SHAFER)**

David discussed a new proposal for an Innovative Treatment Remediation Demonstration (ITRD) project called “Test and Evaluate Interim Covers (Alternatives to Gravel) for the SST Farms”. A 1989 GAO report stated that gravel enhances infiltration at least 10 fold above natural conditions and contributes to the spread of existing vadose zone contamination from the soil to the groundwater. Gravel does add value for worker protection and prevention of airborne contamination in the tank farms.

An ITRD proposal has been approved to look at alternatives to gravel for ground cover in the tank farms. Cost estimates for likely treatability/feasibility studies are being developed. A successful alternative must:

- allow access to tanks for monitoring, maintenance, and sampling
- withstand load-bearing of trucks and other vehicles
- be viable for as long as 30 years (or O&M costs must be low enough that replacement is feasible).

The higher the cost, the more an alternative would need to be viewed from a cost-benefit perspective.

Evaluation of SST farm ground covers is one of the interim corrective measures being built into the TWRS Vadose Zone Program. Others include:

- testing water lines, fixing leaks, or shutting off lines
- new “caps” for dry wells
- sealing old water wells and perforated dry wells
- regrading slopes around some tank farms (e.g., T Farm).

Jim Hanson mentioned that he and David attended the Subsurface Contaminants Focus Area (SCFA) mid-year review a month ago and brought back information on a cone permeameter probe that could be used for vadose zone work here at Hanford.

### **ENHANCED MOBILIZATION OF CS-137 IN THE HANFORD VADOSE ZONE (JOHN ZACHARA)**

John described his Environmental Management Science Program (EMSP) project on cesium migration in the vadose zone, which is a basic research effort in support of DOE site cleanup. He is studying the implications of chemistry on the migration rate of cesium.

In April 1998, a workshop on scientific issues related to the Hanford vadose zone was held at PNNL. John provided the results from the Vadose Zone Biogeochemistry Working Group as a handout.

John is studying the fundamental chemistry that controls the magnitude of the distribution coefficient (which is directly related to the retardation coefficient). He passed around a sample of the mica found in the soils at Hanford. It contains frayed edge sites (FES), where weathering allows water to enter between the mica layers. Potassium ions are released, and cesium ions become trapped and held up in the FES. John’s team is trying to identify the dominant reactions so they can build mathematical models of the vadose zone.

There is a lot of cesium under the tank farms that is bound up in mica solids and isn’t going anywhere. They looked at samples from an extended borehole under Tank SX-109.

There are three types of mica in the Hanford soils; vermiculite is the most highly retentive of cesium. Other minerals appear to retain technetium and plutonium. They did some detailed particle counting for these elements as well.

John stated that the EMSL scientists like the idea of “engineering-driven science” (i.e., focusing science on real technology needs). He believes that we need to integrate EMSP projects more closely with technology developers and TWRS managers to achieve synergy.

### **TECHNOLOGY NEEDS PROCESS/SCHEDULE (KEN GASPER)**

Ken described a methodology for mitigation of programmatic risks in the TWRS Program. On May 8, Ken and his team met with the TWRS engineers and program managers regarding this year’s technology needs assessment process. Some of them are plugged in and ready to work, but many of the managers do not care about technology. In fact, they say that they don’t have any technology needs. Instead, they can describe their biggest problems and what tools they wish they had. Ken is asking them to tie the needs to risks, to include Technology Insertion Points (TIPs) in their Multi-Year Work Plans, and to look for better/cheaper/faster/safer means of getting the cleanup done.

Ken presented a draft list of the technology needs identified to date, categorized as Operations, Characterization, Storage and Disposal, Closure, and Hanford Tanks Initiative. If a need from last year drops off the list, the rationale will be provided to the Subgroup. About 20 needs are expected this year. TFA wants the STCG input by early October, and the STCG is on track to meet this time table.

FDH is taking a more systems engineering approach to gathering the technology needs this year, which will help resolve DNFSB concerns, too. This approach is more focused on the deployment aspects of the needs. In the TWRS Readiness to Proceed document, every block on the TWRS logic diagrams has a Technical Basis Review (TBR) packet associated with it. Each packet contains a description of the risk issues and plans to resolve the risks. Technology deployment is one type of response to mitigate a programmatic risk.

### **TECHNOLOGY ACQUISITION STRATEGY (PAUL SCOTT)**

Due to time constraints, this topics was postponed until a future meeting.

### **ACTION ITEMS**

1. Send copy of laser ablation internal letter report to Alex Stone (Al Noonan). Done.
2. Make copies of David Shafer’s presentation and PNNL white paper for Subgroup (facilitator). Done.

3. Send ideas for alternatives to gravel use in Tank farms to facilitator by June 16 (everyone). Input was received from Vince Panesko and forwarded to David Shafer.
4. Make copies of April 1998 National Lab Meeting on Technical Needs for Hanford Vadose Zone for Subgroup (facilitator). Done.
5. Make copies of Pacific-Rim's list of risk questions for Subgroup (facilitator). Done.
6. Determine process to be used at the Tank Technology Needs Workshop and distribute to Subgroup (Cathy Louie, Paul Scott, Ken Gasper, Jim Honeyman).

### **MEETING ATTENDEES**

Gary Ballew (PREC)  
Bill Bonner (PNNL)  
Wes Bratton (ARA/HTI)  
Dennis Brown (DOE-RL/STP)  
Linda Fassbender (PNNL)  
Tom Frater (FDH)  
Ken Gasper (PHMC/LMHC)  
Jim Hanson (DOE-RL/STP)  
Doug Huston (Oregon Office of Energy)  
Cathy Louie (DOE-RL/TWRS)  
Billie Mauss (DOE-RL/TFA)  
Al Noonan (PNNL/HTI)  
Vince Panesko (Pacific Rim Enterprise Center)  
Loni Peurrung (PNNL)  
Paul Scott (FDH)  
David Shafer (DOE-RL/TWRS)  
Alex Stone (Ecology)  
John Zachara (PNNL)

### **NEXT MEETING**

The next meeting will be the Tank Technology Needs Workshop on July 8, 1998 from 8:00 a.m. to 5:00 p.m. in the ETB Columbia River Room.